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Department of Water Resources

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September 4, 2002

Karl Dreher, Director  
Idaho Department of Water Resources  
1301 North Orchard Street  
Statehouse Mail  
Boise, Idaho 83720-9000

Re: Big Wood Canal Company/Upper Wood River Valley

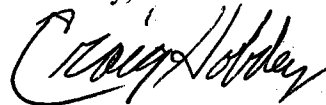
Dear Director Dreher:

Enclosed please find a copy of a Memorandum dated June 2, 1922 regarding the by-pass canal in the Upper Wood River Valley. This was discovered by Lee Peterson the local watermaster and subsequently made available to the Big Wood Canal Company. As general counsel for the Canal Company I have been asked to advise you that the Canal Company will be making improvements on the by-pass and using the canal pursuant to the original agreement. No one on the board is sure why this agreement has not been enforced the past 15-20 years, but given the last several short water years it has become necessary that we exercise that option. There are several small diversion dams on the Wood River, below where the by-pass enters back into the river. The Canal Company will be removing those so flow will not be impaired.

The Board of Directors thought it would be courteous to advise the Department as to their plans and the local watermaster wanted some direction from the Department as to what his role should be, if any.

Thank you for your continued cooperation and assistance.

Sincerely,



Craig D. Hobdey

CDH:dm  
Enclosure  
c: Jerry Nance

Shoshone, Idaho. Jan. 2, 1922

COPY

To the Joint Water Users Association,  
Districts 7 & 11.

Gentlemen;

In the fall of 1920 the construction of a by-pass in the Upper Big Wood River Valley was started by the Idaho Irrigation Co. in cooperation with the Upper and Lower Deeded Water Users.

The canal known as "No. 55" was taken over with the understanding that owners of the canal were to receive their portion of any benefits derived and were to be exempt from any assessments covering first cost.

The point of diversion of the By-pass (The old point of diversion of canal No. 55) is at a point in the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$  of section 13, about 1000 ft. north of section line between sections 13 & 24, 1 N, 18 E. The By-pass follows the old canal about 6700 ft. and thence through an enlargement of the Black Ditch to section line between sections 25 and 36, thence west through an entirely new constructed section to an old slough, a distance of about 2700 ft. . thence in a southerly direction for about 2700 ft. where it empties into the main channel of Big Wood River.

The object of the By-pass is to by-pass a section of Big Wood River known as "The dry-bed", where considerable loss occurs. The capacity was to be sufficient to carry the flow during the low water period which would include the winter months as well as the low water period during the irrigation season.

The cost of the By-pass to date is	\$ 5099.38	
Paid through Water Master Report	<u>54.85</u>	
Balance		\$ 5044.53

Paid by Upper Decreed Users;

Cash to Idaho Irrigation Co.	\$ 300.00	
Francois Jones Bill	89.30	
Cash to labor	<u>200.00</u>	
		\$ 589.30

Paid by Lower Decreed Users;

Cash to Idaho Irrigation Co.	\$ 160.00
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Paid by Idaho Irrigation Co.	\$3500.00	
Less paid to I. I. Co.	<u>460.00</u>	
	<u>\$3040.00</u>	<u>\$3789.30</u>

Balance to pay	\$ 1255.23
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The total cost of	\$ 5099.38
Less	<u>54.85</u>

\$5044.53 was to be paid as follows;

6/10 of \$5044.53 to be paid by Idaho Irrigation Co. for winter use

18.2% Of remainder (\$2017.81x18.2%)	\$ 3026.72
for summer saving	<u>367.24</u>
Total	\$ 3393.96
Paid	<u>3040.00</u>

Balance to pay	\$353.96
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Upper Decreed Users, 62.4 % of \$2017.81	
For summer saving	\$1259.11
Paid	<u>589.30</u>

Balance to pay	\$669.81
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Lower Decreed Users, 19.4% of \$2017.81	
Paid	\$ 391.46
	<u>160.00</u>

Lower Decreed users

Balance to pay

\$231.46

Total amount due  
66

\$ 1255.23

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The saving made by the By-pass is estimated at 900 inches to be divided as follows;

The Idaho Irrigation Co., 18.2% of 900,	163.8 inches
The Upper Decreed Users, 62.4% of 900,	561.6 inches
The Lower Decreed Users, 19.4% of 900,	<u>174.6 inches</u>
	900.0 inches

The entire winter saving is to go to the Idaho Irrigation Co. or their successors.

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The following data gathered during 1919, 1920 and 1921 will prove the loss in the Dry-bed section of Big Wood River as well as the saving made by the By-pass.

An investigation made on June 25th, 1919, (See reports by C. W. Kief and Stewart Campbell, Mile No. 106) in the dry-bed section of Big Wood River showed a loss of 28.6 sec. ft. This investigation started at the Glendale Bridge and ended at a point about  $\frac{1}{2}$  mile below canal No. 61. The loss from the Glendale Bridge to head of By-pass is 6 sec. ft. ( See chart No. 32, 1920 Big Wood report) Taking this loss from the 28.6 sec. ft. given above and we have a net loss of 22.6 sec. ft.

In the fall of 1920 an average flow of 46 sec. ft. was turned down the river which required thirty days to cross, or an average loss

of 46 sec. ft. for the thirty days. After the water reached the end of the dry-bed the average loss for a period of 12 days was 44 sec. ft. (See chart No. 24, 1920 Big Wood River report)

On October 21st, 1921, an investigation was made by Mr. S. T. Baer and writer, with an available supply of 42.9 sec. ft. in river just below head of By-pass a loss of 16.9 sec. ft. was found. At the time of this investigation the flow through the By-pass was 60 sec. ft. 16.9 sec. ft. is 39.4 % of the available supply in the river below By-pass, namely 42.9 sec. ft. Had all the water been flowing down the River with the same percentage of loss, the loss would have been 40 sec. ft., which corresponds very nearly with the loss in the fall of 1920.

Figuring the loss on a percentage bases is not very reliable, a much more accurate method would be to take the increased wetted area, in this case as the water was spreading out in numerous channels it is safe to say that the loss would have increased very materially.

The following figures are given for four months, Nov. Dec. Jan.

and Feb.	Hailey	Blair
1919-20, (Water flowing through dry-bed)	41,020	A. F. 17,240 A. F.
1920-21, (Water Flowing through By-pass)	<u>38,104</u>	" <u>21,038</u> "
	- 2,916	+ 3,798
	38,104	21,038

These figures give a gain of 6714 acre feet with the flow of the river going through the By-pass over the flow through the river for a 120 day period. These figures give an average gain of 28 sec. ft.

How much of this gain, if any, may be due to other causes is unknown.

Three seepage investigations made through the By-pass during 1921 showed an average loss of 3.8 sec. ft.

With Automatic Stage Recorders at the head and mouth of the By-pass and a daily record of the canal diversions taken for the period, Aug. 1st to Sept. 30, a mean loss of 1.9 sec. ft. was found.

On Dec. 23, 1921 at 5.10 p. m. an additional head of 32 sec. ft over what had been running, was turned into the By-pass, which had been flowing down the river. At 12 oclock mid-night Blair station showed by the automatic stage recorder, a gain of 16 sec. ft. and continued to gain as shown by last records recieved on Dec. 27th at which time the gain was 28 sec. ft. with the assumption that the same flow was available at the head of the By-pass.

Shortly after the spring run-off the losses are considerable less than shown by above figures. Exceptionally good water years with a high water table the loss will be less, however it is safe to say that taking 18 sec. ft. or 900 inches as the net saving of the By-pass during the low water period is a conservative figure.

That losses taking place in the dry-bed do not find their way into Big Wood River lower down but flow to Silver Creek is shown by contour maps of the water table as made up from well observations made during 1920 and 1921. Also <sup>by</sup> taking into consideration the stations above the dry-bed and the flow of the river below all return flow or seepage gain.

The By-pass is of greates benifit during the low water period of the irrigation season to facilitate distribution, it was found during 1921 that water could be regulated more accurate with less variation in the flow, as well as more efficient adjustment between the upper and lower decreed users.

Any time a rotation system between the upper and lower district is desired it can be brought around readily with the aid of the by-pass.

The benifit to the storage interests is very apparent, during the winter of 1919-20 no water crossed the dry-bed, as the cold weather came the water froze and spread out over the bars and was lost. Going through the confiend section of the by-pass the water does not freeze but will flow all winter.

The time interval through the By-pass is very short. As has been shown before it required 30 days with ax mean flow of 46 sec. ft. to cross the dry-bed while in the fall of 1920 after the construction work for that year was over the water was put through the by-pass in approximatly two hours with less than twice the flow that required 30 days to get through the river.

The upper end of the By-pass will need some enlargement to carry the fall flow after the irrigation season. Work will be needed from time to time to keep it in repair and keep the river from damaging<sup>e</sup> the lower end. The benifits, out side of the saving, which will go to all water users will much more than off-set any maintenance necessary to keep it in working order, the cost of which should be put on the yearly water master bill.

Respectfully submitted,

S. H. Chapman  
Water Master